

REMARKS/ARGUMENTS

In response to the Office Action dated May 3, 2004, claims 1-19 are amended and claims 20-22 are added. Claims 1-22 are now active in this application. No new matter has been added.

It should be noted that each of independent claims 2-5, 7-9, 12-15 and 17-19 is amended to begin with "The" instead of "A".

REJECTION OF CLAIMS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 2, 13 and 14 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

With regard to claim 2, the Examiner maintains that the claims recites contradictory information in that the exposure of the area sensor is dependent on the light propagation time, and the exposure of the area sensor is independent of the light propagation time. The Examiner asserts that he interprets the claims as being dependent on the light propagation time.

However, such interpretation is incorrect as the claim properly recites the desired limitation. More specifically, what is recited in claim 2 is that the distance to each photoelectric conversion element is measured based on:

i) the output of the area sensor when the active/inactive timing of the area sensor is controlled such that the amount of exposure of the area sensor is dependent on the light propagation time, and

ii) the output of the area sensor when the active/inactive timing of the area sensor is controlled such that the amount of exposure of the area sensor is independent of the light propagation time.

Such distance measurement occurs when measurement error due to the influence of environmental light is prevented, as described beginning at paragraph [0057]. More specifically, as described in paragraph [0059], in frame (n), intermittent light emission is performed and intermittent exposure is performed with timing identical to the emission timing. Thus, the output of the area sensor when the active/inactive timing of the area sensor is controlled will be such that the amount of exposure of the area sensor is *dependent* on the light propagation time (of the light that is emitted and reflected). However, as described in paragraph [0060], the environmental light component in the exposure light of frame (n) is detected by intermittent exposure without light emission in frame (n+1); i.e., based upon just environmental light, not the light that is emitted and reflected. Thus, in frame (n+1), the output of the area sensor when the active/inactive timing of the area sensor is controlled will be such that the amount of exposure of the area sensor is *independent* of the light propagation time, since only environmental light (not emitted light) is used.

Thus, claim 2 recites the invention with the degree of precision and particularity required by the statute. Therefore, it is respectfully urged that the rejection of claim 2, as being indefinite, be withdrawn.

With regards to claims 13 and 14, the Examiner does not understand the reference to “unobnoxious” environment light in claim 13 and “unobnoxious” differences recited in claim 14, and interprets this to mean uniform. However, such interpretation does not reflect what is intended.

To expedite prosecution, claims 13 and 14 are amended to clearly delineate that subject matter of the invention. More specifically, claim 13 is amended to recite:

... wherein the distance data, uninfluenced by environmental light, is obtained by referring to the electric signal in the second time frame.

In addition, claim 14 is amended to recite:

... wherein the distance data, uninfluenced by environmental light, is obtained as differences between reflection ratios of respective portions of the object by referring to the electric signal in the third time frame.

It is believed that amended claims 13 and 14 recite the invention with the degree of precision and particularity required by the statute. Therefore, it is respectfully urged that the rejection of claims 13 and 14, as being indefinite, be withdrawn.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 102 AND § 103

I. Claims 1, 3-5, 11, 12 and 14-17 are rejected under 35 U.S.C. § 102(e) as being anticipated by Yahav et al. (USPN 6,091,905).

Claims 2, 6, 8-10, 18 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yahav et al.

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Yahav et al. in view of Tanaka (USPN 6,252,655).

Claim 13 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Yahav et al. in view of Kitajima et al. (USPN 4,947,202).

II. To expedite prosecution, independent claim 1 is amended to recite, *inter alia*:

...
projecting a light on an object; ...
controlling the active/inactive timing of the area sensor such that the photoelectric conversion elements are exposed to light reflected from the object

and a sensitivity of the area sensor is varied, synchronously with a modulation period of light projection which are periodically modulated in a frame; ...

Independent claim 6 is amended to recite, *inter alia*:

...

a controller for controlling the ON/OFF states of the photoelectric elements with a timing synchronized with the pulse light projection to obtain at least two frame images; and

a processor for eliminating the fluctuating component of the received light intensity due to distance or reflectivity of the object from the amount of exposure obtained based on the ON/OFF control by use of the two frame images.

Independent claim 10 is amended to recite, *inter alia*:

...

sequentially projecting light of a first luminance distribution which is uneven distribution on an object and light of a second luminance distribution which is uneven distribution being different from the first luminance distribution on an object; ...

Independent claim 11 is amended to recite, *inter alia*:

...

controlling the sensor so as to activate to be exposed to light reflected from the object and a sensitivity of the area sensor is varied, synchronously with a modulation period of light projection which are periodically modulated in a frame.

Independent claim 16 is amended to recite, *inter alia*:

...

a control portion for controlling the sensor so as to activate to be exposed to light reflected from the object and a sensitivity of the area sensor is varied, synchronously with a modulation period of light projection which are periodically modulated in a frame.

Yahav et al. does not disclose or suggest the features now recited in amended independent claims 1, 6, 10, 11 and 16. Thus, amended independent claims 1, 6, 10, 11 and 16

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are patentable over Yahav et al. and their allowance, as well as the allowance of dependent claims 2-5, 7-9, 12-15 and 17-19, is respectfully solicited.

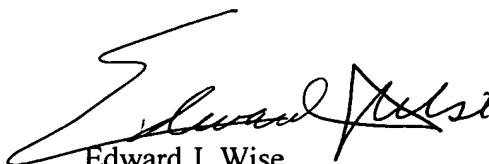
CONCLUSION

Accordingly, it is urged that the application, as now amended, is in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Edward J. Wise", is written over a horizontal line.

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